Master of Science in Electrical and Computer Engineering

The MS program prepares students for development-oriented engineering careers and/or continuation onto doctoral studies by providing:

- Increased depth in an area of specialization
- Expanded breadth in supporting areas
- Focused study of recent advances in your area of specialization

The MS program provides a balance of advanced theory and practical engineering knowledge necessary to prepare its graduates for professional practice and/or for continuation into a PhD program. The program culminates with either a thesis or a project report through which students develop their ability to perform independent investigation of recent advances and present the results in a written document. The typical time for completion is 18–24 months of full-time study.

Specialization Areas

- DSP & Communication: EECE 520, 521, 522, 527, 542, 545, 629, 642
- Computer Engineering: EECE 552, 553, 560, 570, 573, 575, 657
- Information Assurance: EECE 527, 560, 562, 566, 657, 658
- Power & Energy: EECE 502, 503, 504, 508, 509, 511, 512
- VLSI: EECE 570, 573, 574, 575
- Physical Electronics & Electro-Optics: EECE 501, 504, 505, 508, 516, 530, 532, 549, 578

Note: In any given semester, special topics courses are offered that may be used toward your degree requirements. See the published schedule of courses on BU Brain.

Note: With approval of the ECE graduate director, it is possible to form an ad hoc specialization area (e.g., power systems, solar cells, etc.). MS students wishing to form such an area should first consult with the professor who would oversee their thesis or project in the ad hoc area of interest and prepare a proposed ad hoc area; after that, approval from the ECE graduate director should be obtained.

Courses Cross-Listed with Undergraduate Courses

For graduate credit, students in these courses must complete an additional project. The following restrictions apply to cross-listed courses:

- they may not be counted if the student has taken a similar course as an undergraduate;
- they may not be counted after taking a course that has the cross-listed course as a prerequisite.
Admission Requirements

To be admitted, a student is required to have earned a bachelor of science degree in electrical engineering or computer engineering, or a related field. All students are expected to have the equivalent of the courses listed in the following content areas: calculus through differential equations, computer programming, electrical circuits (EECE 260), electronics (EECE 315), digital logic design (EECE 251) and laboratory experience.

Qualified students with non-electrical and computer (ECE) backgrounds are admitted on a conditional basis until the undergraduate ECE course(s) needed to fulfill this requirement are taken.

Required courses for both EE and CoE:

- Electrical Circuits (EECE 260)
- Signals and Systems (EECE 301)

Students specializing in EE need:

Choose 2 out of the 5 listed below:

- Electronics (EECE 315)
- Control Systems (EECE 361)
- Solid State Theory (EECE 332)
- Data Structures (CS 240)
- Communication Systems (EECE 377)

Students specializing in CoE need:

Required:

- Sophomore Design (EECE 287) (Embedded Computer Systems)

Choose 2 out of the 4 listed below:

- Digital Logic Design (EECE 251)
- Data Structures (CS 240)
- Digital Systems (EECE 351)
- Computer Architecture (EECE 352)

The GRE is required but applicants with strong credentials may petition the Graduate Director to be evaluated without supplying GRE scores. GRE Quantitative-area scores must be generally 155 or above, but an applicant's transcript is also heavily weighted.
An acceptable TOEFL, IELTS, or PTE score is required if a student’s native language is not English. An internet-based TOEFL score of 80 or above is required for admission, while a score of 100 or above is preferred for students seeking teaching assistantships. Paper-based TOEFL minimum is 550. IELTS minimum score is 6.5 with no band below 5.0 or a PTE academic minimum score of 53.

Degree Requirements

The student must maintain at least a B average in all graduate coursework:

- **Specialization Courses**:
  - 3 courses in a single area of specialization (see list of areas above);
  - Only in very special circumstances can EECE 597 Independent Study be used.

- **Breadth Courses**:
  - For *Thesis Option* : 2 ECE Courses in two areas other than specialization;
  - For *Project Option* : 3 ECE Courses in at least two areas other than specialization.

- **Math Methods Course**:
  - EECE 506 Mathematical Methods in Electrical Engineering; *or*
  - EECE 507 Mathematical Methods in Computer Engineering; *or*
  - Another approved relevant mathematical methods course.

- **Electives**: 2 Courses—may be either ECE courses or from other departments:
  - Any regular ECE Graduate Course not used above;
  - EECE 597 Independent Study (can be used for both electives);
  - Certain Graduate Courses (see the ECE Graduate Handbook):
    - Other Engineering, Math, and Science Departments;
    - The School of Management.

- **Thesis Option or Project Option**:
  - EECE 599 Research Thesis (6 credits) *and* successful defense of MS Thesis, *or*
  - EECE 598 Project (3 credits) *and* acceptance of MS Project Report.